




National Aeronautics and  
Space Administration

# EXPLORE SCIENCE

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NASA Science Mission Directorate

 @Dr\_ThomasZ

May 28, 2020

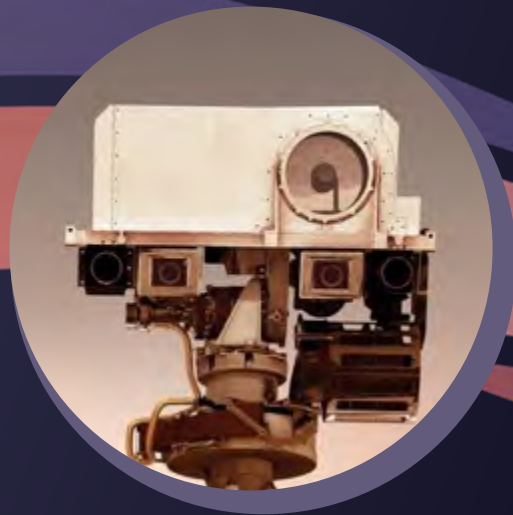








STATUS



HIGHLIGHTS



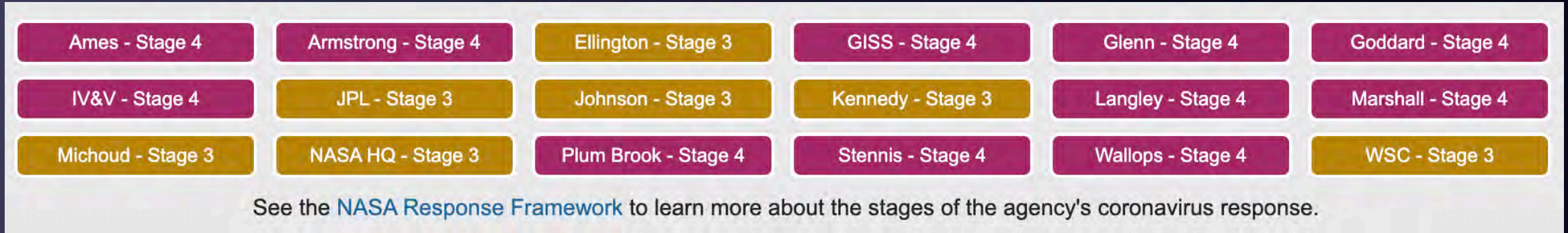
PEOPLE



SCIENCE PLAN

# NASA Coronavirus (COVID-19) Response

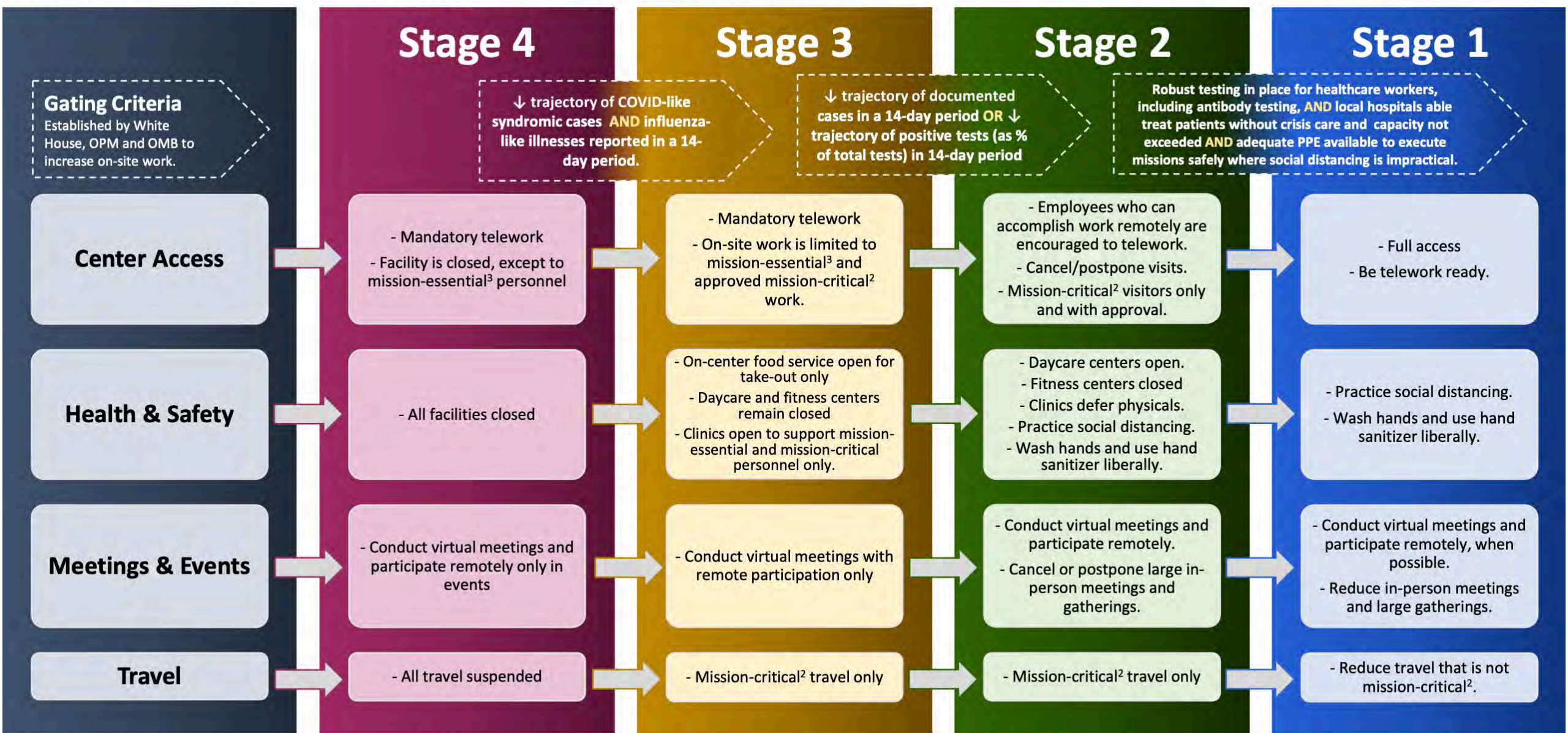
- All NASA Facilities Status as of May 26, 2020



- NASA leadership has developed agency wide guidance that takes into account guidelines provided by the White House and the Offices of Personnel Management and Management and Budget, and calls for a controlled, methodical and flexible return to on-site work



# NASA Framework for Return to On-Site Work (as of 3 May 2020)



1. All travel to or from centers at Stage 3 or higher, or to countries at Level 3 or higher, requires an approved Request for Travel Exception form. The [Request for Travel Exception](#) form is available on the NASA People website. For the latest CDC international travel information, go to <https://www.cdc.gov/coronavirus/2019-ncov/travelers/index.html>.

2. **Mission critical:** work that must be performed to minimize the impact on mission/project operations and/or schedules and cannot be performed remotely or virtually.  
3. **Mission essential functions:** As described in the COOP, during an emergency, NASA's Primary and Mission Essential Functions (P/MEFs) must be continued with minimum interruption and are focused on protecting life and property as well as insuring agency leadership and control of the agency.

Astrophysics	Earth	Planetary	JASD
<b>JWST</b>	Landsat-9	<b>Mars 2020</b>	GOES-T
WFIRST	PACE	DART (APL)	GOES-U
WFIRST Coronagraph	NISAR	Lucy	JPSS-2
GUSTO	SWOT	Psyche	JPSS-3 and 4
IXPE	Sentinel-6 Michael Freilich	JUICE	SWFO-L1
Euclid	TEMPO	MMX MEGANE and P-Sampler	
SPHEREx	GeoCarb	Europa Clipper	<b>Helio</b>
ARIEL	EMIT	VIPER	HERMES
XRISM	MAIA	Dragonfly	IMAP
Balloons	CLARREO-PF	Luna-H Map	PUNCH
Athena, LISA	TROPICS	MOMA-MS	AWE
SOFIA	PREFIRE	Lunar Trailblazer	TRACERS
<b>ESSIO</b>	GLIMR	JANUS	EscaPADE
NPLP	TSIS-2		Sounding Rockets
CLPS - Astrobotics, Intuitive Machines, Masten Space Systems	Libera		SunRISE
LSITP	Airborne Science		

# Missions in Development: Return to Site Status

## Status as of: 5/26/20

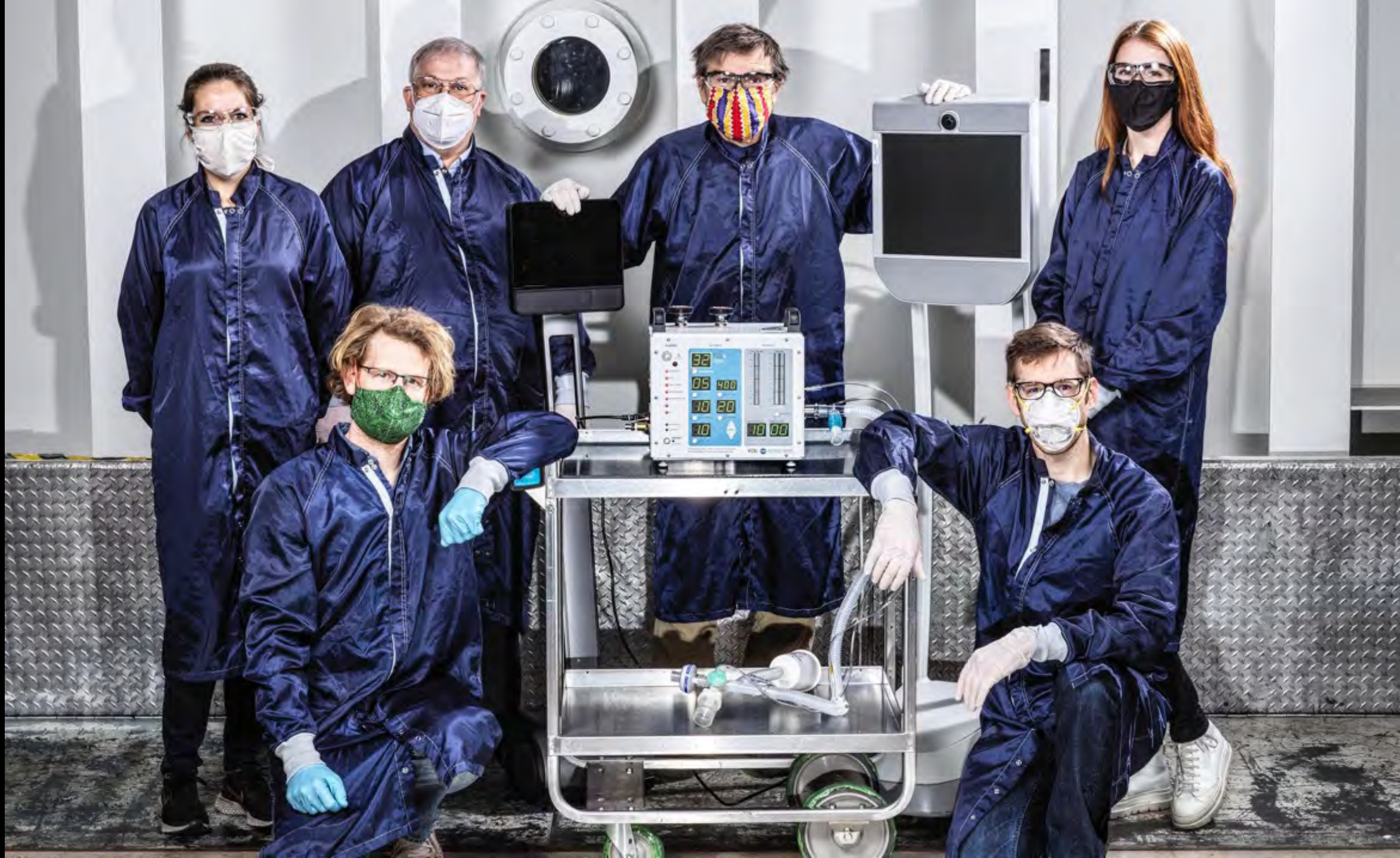
- **Red**: Work at Stage 4
- **Green**: Approved to work on site
- **Yellow**: Expected to Submit for Approval
- **Grey**: Not yet requested to work on site



# SMD COVID-19 Impacts to Date

- Duration and impact of COVID-19 disruptions continues to be uncertain, especially for projects in formulation
  - Many, but not all, SMD activities are affected
  - Impacts from inefficiencies for on-site work due to safety concerns with proximity and personal protective equipment (PPE) both at NASA and industrial partners
  - Potential impacts of supply chain
- Interagency partnership missions are continuing—most work with minimal impact to date
- Minimal impact to Mars 2020. Preparations continue at NASA's Kennedy Space Center
- James Webb Space Telescope Status
  - Although the NASA portion of the NASA/NGSS team returned home mid-March, and I&T at NGSS had reduced shifts, Observatory I&T continued making progress
- Operational missions:
  - Have not lost any data since the COVID issues
  - Have mitigation plans, e.g., backup Mission Ops Centers
- Airborne assets in place to assist Mars 2020 (and other projects) as well as disaster relief







# Coronavirus (COVID-19) Response – R&A

- SMD is finalizing a process to provide limited adjustments to existing grants. Not all grants can be made whole, however
  - The focus will be on mitigating the impacts of the COVID-19 epidemic on the most vulnerable of us: graduate students, post-docs, and early career researchers in soft-money positions
  - SMD does not want the COVID-19 epidemic to massively derail the careers of future leaders
  - Details will be made public by the end of June
- SMD is also considering options for helping SMD-funded, recently graduated PhDs and post-docs whose appointments are ending to weather the expected freeze in hiring by many research institutions
- Review panels have all been converted to virtual events and are functioning well albeit in some cases taking longer than originally planned
  - Expect this to be the norm until at least September
- NASA's implementation of OMB's guideline for managing grants can be found at <https://science.nasa.gov/researchers/sara/library-and-useful-links>

# Coronavirus (COVID-19) Response – R&A (continued)

- Several more ROSES due dates have been moved based on community comments
  - ESD is working to resolve the pile-up of three ROSES solicitation in the same focus area (MAP, PO, Cryo)
  - Cryosphere Science has already been delayed by four weeks
- Planetary Science and Astrobiology Decadal Survey has started
  - White paper due date moved to July 4<sup>th</sup> but can't be moved later
  - LPSC Early Career Workshop conducted virtually
  - LPSC Session on the results of the Planetary Mission Concept Studies also conducted virtually. Several hundred individuals attended
  - Co-Chairs have been named, Robin Canup and Phil Christensen
- Astrophysics Decadal Survey proceeding
  - Final report will be delayed until Spring 2021



# Earth Science Rapid Proposals

Earth Science Division released a new opportunity on 3/31/20 under ROSES 2020 Element A.28 Rapid Response and Novel Research in Earth Science (RRNES) “Making Innovative Use of NASA Satellite Data to Address Environmental, Economic, and/or Societal Impacts of the COVID-19 Pandemic”

- Addresses research in underlying physical, biological and/or Applied Sciences-related topics characterizing impacts of decisions or efforts to inform decision makers on regional-to-global levels in their responses to mitigate the impacts of the disease
- Proposed studies must use NASA satellite data and information products as primary research tools, may also utilize additional remote sensing data and products from government agencies, international, or commercial sources
- Rolling deadline – over 100 inquiries, over 30 proposals received, seven selections to date, plus one augmentation
- Period of performance 12 months or less
- Est Over \$1M selected, investment could increase pending submissions
- Selection overview: <https://science.nasa.gov/earth-science/rrnes-awards>
- POC: Dr. Laura Lorenzoni ([laura.lorenzoni@nasa.gov](mailto:laura.lorenzoni@nasa.gov))

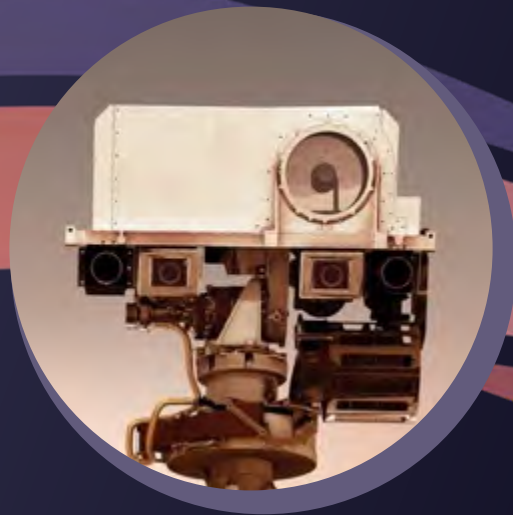
# COVID Space Apps Challenge

- Global Virtual Hackathon
  - Saturday & Sunday, May 30-31, 2020 – 9am local start time
  - Target audience: Space Apps global community, currently over 8,100 teams registered and climbing
  - Registration link: <https://covid19.spaceappschallenge.org>
- Platform: Space Apps hackathon platform ([spaceappschallenge.org](https://spaceappschallenge.org)) has been customized for the COVID-19 global virtual hackathon
- Partners: ESA, JAXA, CNES, CSA
- Challenges: Four thematic areas using EO data:
  - Virus and its spread
  - Local response/change and solutions
  - Changes in the Earth system/Earth system response
  - Economic opportunity, impact, and recovery during and following COVID-19





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HIGHLIGHTS



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SCIENCE PLAN

# SMD Division Highlights

- Astrophysics – Dr. Paul Hertz
- Earth Science Division – Sandra Cauffman
- Exploration Science Strategy and Integration – Steve Clarke
- Heliophysics – Dr. Nicola Fox
- Planetary Science – Dr. Lori Glaze



# Astrophysics

- Two SMEX (COSI/J. Tomsick, UC Berkeley; ESCAPE/K. France, Colorado U) and two Mission of Opportunity proposals (Dorado/B. Cenko, GSFC; LEAP/M. McConnell, UNH) selected for competitive Phase A studies
- Hubble Space Telescope celebrated 30 years in orbit
- TESS discovered 4 planets orbiting HD 108236, a nearby Sun-like star
- James Webb Space Telescope successfully folded into its launch configuration in preparation for launch environment testing
- WFIRST named the Nancy Grace Roman Space Telescope



# Earth Science

- Testing for Sentinel-6 Michael Freilich continued virtually with support from NASA, working with Airbus, ESA and EUMETSAT
- SnowEx completed second field campaign
- ESD is using information from NASA's Earth-observing satellites, surface sensors, and computer-based datasets to study the environmental, economic and societal impacts of the COVID-19 pandemic and to determine whether environmental factors influence the spread of the virus
- Awards:
  - Webby Awards for Explorers Cryosphere video series and Climate website
  - Claire Parkinson (GSFC) nominated for top federal service award, the "Sammie"





# Exploration Science Strategy and Integration

- The first virtual Lunar Surface Science Workshop will be held today and tomorrow, May 28-29, 2020
  - ESSIO collaborated with HEOMD and STMD to coordinate this virtual workshop to replace the face-to-face meeting scheduled for April, currently has 600+ registrants
  - Focus is science enabled by crews
- Payloads and Research Investigations on the Surface of the Moon (PRISM)
  - Received 239 Stage 1 RFI responses for lunar surface payload concepts relevant to all SMD divisions, HEOMD, and STMD; Stage 2 call in work
- ESSIO completed the first SMD-STMD MOA on joint participation in a CLPS delivery service
  - This MOA, regarding cooperation on the CLPS lunar surface delivery to be performed by Intuitive Machines next year, serves as a pathfinder for cross-directorate agreement for future CLPS deliveries
- LRO has successfully adapted to COVID-19 operations without loss of science objectives



# Heliophysics

- NASA recently selected the first two scientific investigations to fly on Gateway in support of Artemis
  - The NASA space weather instrument suite, led by the Heliophysics Division, will observe solar particles and the solar wind. The second scientific investigation is a radiation instrument package, built by the European Space Agency
- Parker Solar Probe Began Longest Science Observation Campaign
  - On May 9, 2020, Parker Solar Probe began its longest observation campaign to date. The four instrument suites will continue to collect data through June 28, markedly longer than the mission's standard 11-day encounters
- Sun Radio Interferometer Space Experiment (SunRISE) Selection
  - SunRISE will study how the Sun generates and releases giant space weather storms, known as solar particle storms, into planetary space. SunRISE will be an array of six CubeSats operating as one very large radio telescope





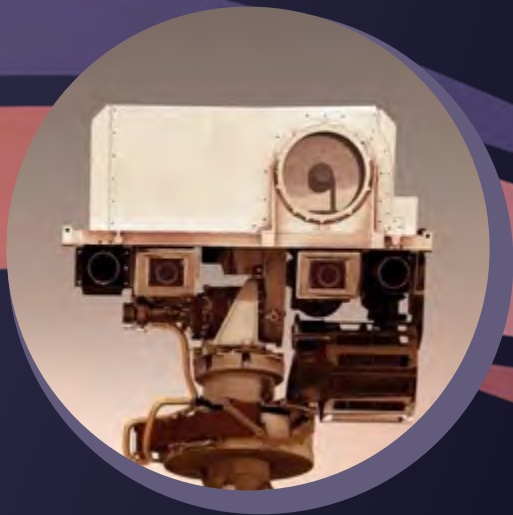
# Planetary Science

- Mars2020/Perseverance: on track for July launch
  - Helicopter named Ingenuity
- OSIRIS-REx: Go-ahead for Matchpoint rehearsal (Aug) & TAG (Oct)
- VIPER: looking to launch in 2023
  - CLPS delivery contract announcement soon
- Planetary Science & Astrobiology Decadal Survey Co-Chairs named: Robin Canup (SWRI) & Philip Christensen (ASU)
- New Mercury Exploration Assessment Group (MExAG)
  - Chair: Steven A. Hauck, II (Case Western Reserve University)





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# Welcome, Dr. Karen St. Germain

- Effective June 8, 2020 we will welcome Dr. Karen St. Germain as the Director of the Earth Science Division
- Currently holds senior position at the National Oceanic and Atmospheric Administration (NOAA) as the deputy assistant administrator, systems, for NOAA's National Environmental Satellite, Data, and Information Service (NESDID)
- I want to thank Sandra Cauffman for her leadership during the leadership transition period. She took on a challenging role and successfully kept our Earth Science work on track. I also want to thank Dr. Paula Bontempi who served as deputy director. They both have my deepest gratitude

# Thank You from SMD



**Steve Clarke**

Deputy Associate Administrator for Exploration, will transition into his new role as Aeronautics Research Mission Directorate Deputy Associate Administrator in mid-June.



**Craig Tupper**

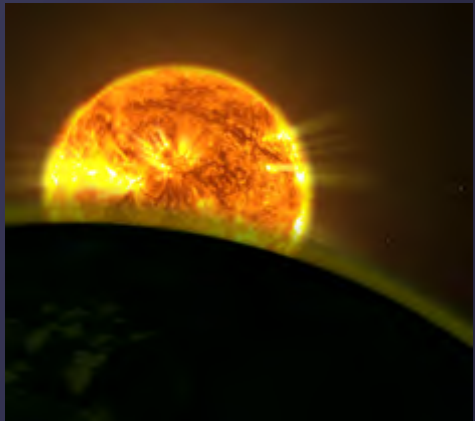
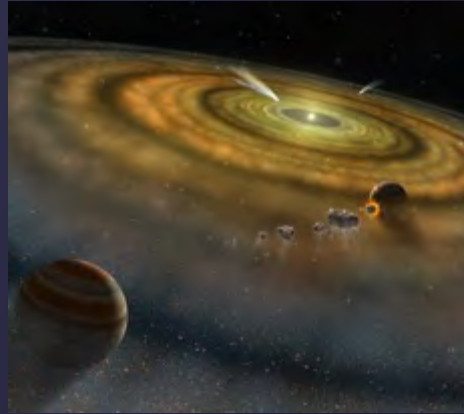
SMD Resource Management Division Director is retiring after almost 33 years at NASA, we wish him the best of luck.



# SMD Summer Interns

- This summer's internships won't look the same as they have in the past. We are working diligently to ensure that our interns can do meaningful work, and have an impactful experience
- Moving to a virtual model has allowed us to increase the number of available internships
- Interns gain valuable, and often life-changing, experiences otherwise unattainable
- Productive and positive internships are an excellent pathway and recruiting tool for them into the NASA community





# Open Opportunity

SMD Deputy Associate Administrator for Programs recruitment is live on USAJOBS

- Works with senior leadership to ensure programs and projects are organized and conducted for safety and success
- Assesses portfolio of approximately one hundred spaceflight missions for technical and cost effectiveness, quality, and performance
- To apply, go to: <https://www.usajobs.gov>
  - Announcement number: HQ20S0024
  - Closes tomorrow May 29, 2020



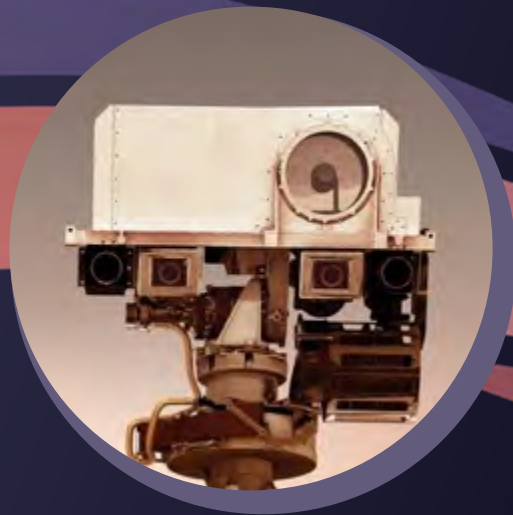
# Coming Soon

Recruitment for multiple SMD Program Scientists at NASA Headquarters coming this June

- Program Scientists will work as part of a diverse and agile team whose core values include excellence, integrity, transparency, teamwork and a growth mindset towards stewarding NASA's and the nation's space-based science program
- Broad responsibility for advancing NASA's science portfolio
- Announcement will be released on <https://www.usajobs.gov>



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# NASA Science Plan Released

- Science 2020-2024: A Vision for Scientific Excellence released May 28, 2020 at [science.nasa.gov/about-us/science-strategy](https://science.nasa.gov/about-us/science-strategy)
- Through close collaboration with the entire Science Mission Directorate leadership team and NASA Center Directors, laid out ambitious program over next five years to build on current activities and drive change in high-priority areas where we can have the greatest impact
- Demonstrated commitment to excellence across SMD portfolio through leadership and strategic engagement with partners
- Consulted with the NAC Science Committee and Space Studies Board ad hoc committee to validate approach
- Will continually assess progress for transparency and accountability

# NASA Science Strategic Approach

## VISION

Lead a globally interconnected program of scientific discovery that encourages innovation, positively impacts people's lives, and is a source of inspiration

## MISSION

Discover the secrets of the universe

Search for life elsewhere

Protect and improve life on Earth

## VALUES

Excellence

Leadership

Integrity

Teamwork

Safety

## FOCUS

Exploration and Scientific Discovery

Innovation

Interconnectivity and Partnerships

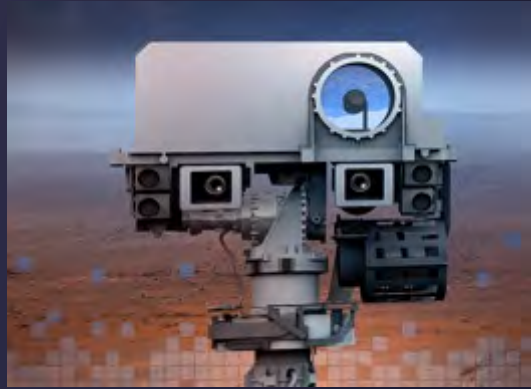
Inspiration





## Exploration and Scientific Discovery

Seeking to discover the secrets of the universe, search for life, and protect and improve life on Earth. We utilize a balanced portfolio approach that is informed by Decadal Surveys and is responsive to Administration priorities and direction from Congress to make progress and enhance opportunities for cross-disciplinary science.



## Innovation

Fostering a culture that recognizes innovation and measured risk-taking as the cornerstones of a forward-looking program of scientific discovery. We encourage innovation, entrepreneurship, and collaboration in pursuit of common goals and to capitalize on the rapid evolution of commercial capabilities.



## Interconnectivity and Partnerships

Forming strategic partnerships that leverage each contributor's strengths to yield advances for mutual benefit. We recognize and support the important role NASA Centers, Federal agencies, private industry, academia, non-profits, community-based organizations, and international partners play in helping make our scientific vision a reality.



## Inspiration

Building opportunities to encourage as wide an audience as possible to engage in our work. We seek to reduce barriers to entry, in order to allow people of all ages and backgrounds to join us for the benefit of the entire scientific and engineering community, as well as the world.



A child in a red space suit is walking on a brown, dusty surface that resembles the moon. In the background, the Earth is visible in the sky. The scene is partially obscured by a large, dark blue curved shape that frames the text on the right.

# 2024 Future State

- Implement recommendations of Decadal Surveys in concert with national priorities and needs through creative partnership models that go beyond traditional ways of developing and executing missions
- Challenge assumptions about what is technically feasible and enable revolutionary scientific discovery through a deliberate focus on innovation, experimentation, and cross-disciplinary research
- Create a more collaborative culture within SMD and across science community, encouraging diversity of thought, sharing best practices, and informed risk-taking to improve operations
- Develop future leaders and inspire learners of all ages through new opportunities and hands-on experiences
- **Read the full document at [science.nasa.gov/about-us/science-strategy](https://science.nasa.gov/about-us/science-strategy) to understand our priorities and how we will continue to interact with the community**

# EXPLORE

with us

